

>> PERCEPTION

Illusions of Steepness and Height

When we judge vertical distances, environmental cues trick our brain

When deciding whether to climb a hill, we try to take into account both how high it rises and how steep the ascent will be. Chances are good, however, that our estimates of both these variables will be wrong. Two recent studies show how our perception of vertical distances is skewed—perhaps for good evolutionary reasons.



With a Little Help

The walk to and from school can't be uphill both ways, but going it alone might make it seem that way. When judging the steepness of a hill, people overestimated its angle more when

alone than when they were accompanied by—or even thinking about—a friend, reports an international group of researchers led by Simone Schnall of University of Plymouth in England. The longer the volunteers had been friends with their companions, the less steep the hill seemed.

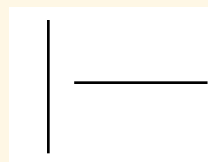
The authors hypothesize that psychosocial resources, such as having a trusted friend nearby, help people to see challenges in their surroundings as easier to navigate. In similar studies, subjects who were fatigued, out of shape or wearing a heavy backpack perceived hills as steeper and distances as longer than they really were.

Such built-in perceptual illusions may provide an evolutionary advantage, says Emily Balcetis of Ohio University, who was not involved with the study. Exaggerating a challenge's difficulty, she explains, "might better help you prepare to encounter it."

—Lucas Laursen

Height Apparent

It's a common optical illusion: when you see a horizontal line and a vertical line of equal length, the vertical line always seems longer (*right*).



Now it seems this illusion might be an evolved perceptual distortion designed to help us avoid falls, according to researchers who found that we misjudge heights the same way in the real world.

In the experiments, people overestimated vertical distance by 16 to 51 percent as compared with their estimate of the same distance when it was shown along the ground—and the higher the vertical distance, the greater the overestimation. Evolutionary psychologist Russell E. Jackson of California State University San Marcos, who led the study, explains that these findings support his theory of "evolved navigation." The theory predicts that we developed perceptual and navigational mechanisms that steer us toward routes that minimize costs, such as danger.

Although we assume that evolution tends to make our perceptions conform with reality, Jackson says that is not necessarily so, as long as a perceptual distortion has survival value.

—Kurt Kleiner

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